ABSTRACT

A system and method is provided for using backscattered data and known parameters to characterize vascular tissue. Specifically, in one embodiment of the present invention, an ultrasonic device is used to acquire RF backscattered data (i.e., IVUS data) from a blood vessel. The IVUS data is then transmitted to a computing device and used to create an IVUS image. The blood vessel is then cross-sectioned and used to identify its tissue type and to create a corresponding image (i.e., histology image). A region of interest (ROI), preferably corresponding to the identified tissue type, is then identified on the histology image. The computing device, or more particularly, a characterization application operating thereon, is then adapted to identify a corresponding region on the IVUS image. To accurately match the ROI, however, it may be necessary to warp or morph the histology image to substantially fit the contour of the IVUS image. After the corresponding region is identified, the IVUS data that corresponds to this region is identified. Signal processing is then performed and at least one parameter is identified. The identified parameter and the tissue type (e.g., characterization data) is stored in a database. In another embodiment of the present invention, the characterization application is adapted to receive IVUS data, determine parameters related thereto (either directly or indirectly), and use the parameters stored in the database to identify a tissue type or a characterization thereof.

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